

REMARKS

Please reconsider the present application in view of the above amendments and following remarks. Applicants thank the Examiner for carefully considering the present application.

Claims 1-3 are currently pending. By way of this reply, claims 1-3 have been amended, claims 4-14 have been added.

Response to Rejection Under 35 USC 103(a) in View of Sindhu, Yin, and Braden

Claim 1 and 3:

In pages 3 through 4 of the Office Action, the Examiner rejected claims 1 and 3 under 35 USC § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,493,347 to Sindhu et al. (“Sindhu”) in view of U.S. Patent No. 6,810,012 to Yin et al. (“Yin”). This rejection is now traversed.

Independent claim 1 has been amended to now recite:

A method for managing a queue of packets using queue sets, the method comprising:
allocating a plurality of consecutive packets to a queue set, the plurality of consecutive packets being associated with the queue; and
performing a queuing operation on the queue set, the queuing operation treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set.

As amended, independent claim 1 beneficially recites a method for managing a queue of packets using queue sets. The method allocates a plurality of consecutive packets to a

single queue set and performs a queuing operation on the queue set, treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set. Because the queue set contains a plurality of packets, a single queuing operation on the queue set processes several packets, thereby reducing the rate of queuing operations and enhancing the efficiency of queue management.

Sindhu does not disclose independent claim 1 as amended. Sindhu discloses a router for switching data packets from a source to a destination in a network. See Sindhu, Abstract. The Examiner cited col. 19, lines 26-30 and col. 18, lines 37-50 to support the rejection. However, col. 19, lines 26-30 of Sindhu describes a process to determine whether and how to drop data from a particular queue. The process calculates a fraction of fullness of the queue, determines a drop criterion based on the fraction of fullness, and derives a random number to determine whether to drop data from the queue. “The entry at the head of the particular queue is dropped if the random number generated is larger than the drop criterion.” See Sindhu, col. 19, lines 37-39. Col. 18, lines 37-50 of Sindhu merely discloses that the size of a queue buffer is initially proportional to a peak bandwidth. Sindhu is totally silent as to “allocating a plurality of consecutive packets to a queue set, the plurality of consecutive packets being associated with the queue; and performing a queuing operation on the queue set, the queuing operation treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set” as is claimed in independent claim 1.

Yin similarly fails to disclose the above-emphasized claim elements. Yin discloses a method to determine when to service a cell queue in an ATM network. See Yin, Abstract. The Examiner cited col. 3, lines 43-47 to support the rejection. Col. 3, lines 43-47 of Yin

merely discloses “an interval time that may pass between each time the queue is serviced.” The queue in Yin is serviced on a per cell basis. See Yin, col. 3, lines 64-66 (“The ideal service interval defines a maximum amount of time in seconds that may elapse between cells for a given queue being scheduled.”). A cell in Yin is a basic unit of information for transmission. See Yin, col. 1, lines 20-24 (“In the Asynchronous Transfer Mode system, the information to be transmitted is divided into fifty-three byte units known as ‘cells.’”). Therefore, similar to Sindhu, Yin is totally silent as to “allocating a plurality of consecutive packets to a queue set, the plurality of consecutive packets being associated with the queue; and performing a queuing operation on the queue set, the queuing operation treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set” as is claimed in independent claim 1.

In view of the above, Sindhu and Yin, whether considered individually or in combination, fail to disclose each and every limitation recited in independent claim 1. Thus, independent claim 1 is patentable over Sindhu and Yin. Dependent claim 3 is allowable for at least the same reasons. Accordingly, withdrawal of the § 103 rejections is respectfully requested.

Claim 2:

In pages 4 through 5 of the Office Action, the Examiner rejected claim 2 under 35 USC § 103(a) as allegedly being unpatentable over Sindhu in view of Yin and further in view of Request For Comments: 2309, titled “Recommendations on Queue Management and Congestion Avoidance in the Internet” by Braden et al. (“Braden”). This rejection is now traversed.

As argued above, Sindhu and Yin, whether considered individually or in combination, fail to disclose each and every limitation recited in independent claim 1. Braden similarly fails. Braden describes an active queue management mechanism called “Random Early Detection” (RED) to provide network performance improvement. See Braden, page 2. The RED mechanism estimates an average queue size of a queue and decides whether or not to drop an incoming packet of the queue based on the average queue size. Therefore, the RED mechanism manages packets of a queue on a per packet basis. Similar to Sindhu and Yin, Braden is totally silent as to “allocating a plurality of consecutive packets to a queue set, the plurality of consecutive packets being associated with the queue; and performing a queuing operation on the queue set, the queuing operation treating the queue set as a single entity, such that the queuing operation is performed on each of the plurality of consecutive packets in the queue set.” as is claimed in independent claim 1.

Therefore, Sindhu, Yin, and Braden, whether considered individually or in combination, fail to disclose each and every limitation recited in independent claim 1. Thus, independent claim 1 is patentable over Sindhu, Yin, and Braden. Dependent claim 2 is allowable for at least the same reasons. Accordingly, withdrawal of the § 103 rejections is respectfully requested.

Conclusion

Applicants have added new claims 4-14 for which Applicants request consideration and examination. Applicants respectfully submit that these are supported by the specification and are commensurate within the scope of protection to which Applicants believe they are entitled.

In sum, Applicants respectfully submit that claims 1 through 14, as presented herein, are patentably distinguishable over the cited references. Therefore, Applicants request reconsideration of the basis for the rejections to these claims and request allowance of them.

Should the Examiner wish to discuss the above amendments or if the Examiner believes that for any reason direct contact with Applicants' representative would help to advance the prosecution of this case to finality, the Examiner is invited to telephone the undersigned at the number given below.

Respectfully Submitted,
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